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AUTHOR Lach, Ivan J.
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ABSTRACT

The Illinois Community College Board (ICCB) Faculty and Staff Utilization subsystem, a component of the ICCB management information system, was designed to produce meaningful and useful information reports for the analysis of faculty and staff, as a resource, in Illinois community colleges. Accommodating the complex nature of staffing at the 49 Illinois community colleges, the subsystem enables proration of salaries, provides basic salary allocation for unit cost study, can accurately calculate outputs per annual faculty FTE, and when interfaced with course enrollment data, produces a number of faculty productivity reports showing a profile of student course enrollment, course contact hours, student contact hours, course credit hours, and student credit hours. Additionally, the subsystem generates faculty productivity information for purposes of comparison between institutions, while providing individual campuses with information critical to analysis of local operations. Sample output and several charts are included in the report to illustrate basic design principles of the subsystem. (Author/JDS)

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THE ICCB COMPUTER BASED

FACULTY AND STAFF UTILIZATION SUBSYSTEM

June 25, 1976

By:

Ivan J. Lach
Associate Director for Planning and Research
Illinois Community College Board
518 Iles Park Place
Springfield, Illinois 62718
(217) 782-2495

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THE ICCB COMPUTER BASED

F.\CULTY AND STAFF UTILIZATION SUBSYSTEM

Introduction

The ICCB Computer Based Faculty and Staff Utilization Subsystem is only one segment of a comprehensive statewide management information system which is being developed by the Illinois Community College Board (ICCB). The ICCB Management Information System was initiated in response to an expressed need for more reliable and timely data about the operations and outcomes of the community colleges in Illinois by the various state agencies and the legislature. There is also a mandate for utilization studies of faculty and staff in the community colleges of Illinois contained in the Illinois Public Community College Act (Article 102-11) as well as in ICCB policies which are specified as requirements for state recognition.

Faculty productivity data are also essential in supporting the community college annual appropriation request. The reason for this is that salaries make up a large portion of the operating expenses at the community colleges and the legislators are vitally interested in seeing the efficiency of faculty and staff utilization at the community colleges. The Illinois Community College Trustees Association is also vitally concerned about faculty productivity in the community colleges of Illinois. In February, 1975, they recommended to the ICCB that the ICCB staff conduct annual statewide studies of faculty productivity and class size. The ICCB approved this recommendation at their February 21, 1975 meeting.

Although the needs for faculty and staff utilization data is great at the state level, it is immensely more important at the local institutional level. Data on faculty and staff productivity is critical in analyzing the operations within a community college. Just as the unit cost studies are utilized a great deal by local community college administrators for management and planning, so also can faculty and staff utilization data be

utilized. In fact, unit cost data and faculty and staff utilization data are highly correlated. It is obvious that class size and faculty utilization influence the college costs greatly; therefore, to analyze the college's operations in terms of costs, it is also necessary to analyze the faculty and staff utilization. It must be pointed out that many other analyses other than cost analyses are possible from these data also. However, for faculty and staff utilization data to be most useful at the local level, it is essential to have statewide data for normative purposes as well as data for each of the other community colleges for comparative purposes. For example, it is not very meaningful to know that the number of student contact hours per class within your institution is 32.64 unless you know the state average and what the average number of contact hours per class is at other institutions.

Faculty and Staff Data

Faculty and staff reporting is supported at four basic levels. Each person has basic information gathered for his records. This includes standard statistical information such as sex, birthdate, ethnic origin, physical handicaps, and the highest level of academic attainment. This information indicates only that the person is employed by the institution. In addition, the system must also show the job classification in which the person was appointed. Within appointments, the employee can further be classified by the various assignments that a person will be involved. Finally, the employee may be further classified down to the various activities that he will participate in when fulfilling his responsibilities.

For statewide reporting, faculty and staff appointments are sufficient for basic statistical reporting. However, assignments are required for costing or allocation of faculty time to a specific program classification (typically program discipline, level). There is no statewide requirement for activity data -- those specific activities of a faculty or staff

member -- but the capability is being provided for those institutions which wish to use the system for faculty activity analysis. This kind of analysis is required for some federal reimbursement programs.

Design Principles

The designation of each faculty or staff member is based on a hierarchial numbering system. The major classification of a faculty member is defined by his identification number. Each member is further defined by an appointment, an assignment and an activity. With the exception of the identification number, each faculty or staff member may have multiple activities, within multiple assignments, within multiple appointments. The level of detail that is required may be defined individually by each campus as long as the hierarchy is maintained -- assignments cannot exist without appointments for example. For each of the lower levels -- appointment assignment, or activity -- an additional two digit number is appended to the basic social security number. Thus depending on the level of detail desired, the identification number will range from nine to fifteen digits.

The faculty and staff master file maintains individual records for each level or category of the employee. Within each of the records, different types of information are maintained. For example, the employee master record maintains the basic statistical information such as sex, birthdate, and ethnic origin. Within each appointment record, information is maintained on the type of appointment, the organizational department, length of the appointment, salary and the FTE value for the appointment. Assignment records indicate on an FTE basis the occupational area, the length of the assignment, and the NCHEMS program classification of the assignment.

Of major importance in the faculty and staff data are the definitions of Annual Appointment FTE which are based on a full twelve month (52 week) year and Assignment FTE which is for the period of the assignment. These two definitions along with examples are illustrated below:

ANNUAL APPOINTMENT FTE: Appointment FTE is defined to be the institutionally defined full-time equivalency of a given appointment times the fraction of a full (52 week) year of the appointment.

Example 1: Full-time teaching appointment for 39 weeks (9 months)

$$1 \text{ FTE} \times \frac{39 \text{ weeks}}{52 \text{ weeks}} = .75 \text{ appointment FTE}$$

Example 2: One-fourth time appointment for one quarter (13 weeks or 3 months)

$$1/4 \text{ FTE} \times \frac{13 \text{ weeks}}{52 \text{ weeks}} = .08 \ (1/16) \text{ appointment FTE}$$

ASSIGNMENT FTE: Assignment FTE is the institutionally defined full-time equivalency of the assignment for the period of the assignment.

Example 1: Teaching a 3 hour course for one semester. Institutional definition of FTE is 30 course hours per year or 15 course hours per semester.

Assignment FTE = 3/15 or .20 FTE

Example 2: Teaching full-time for 9 months

Assignment FTE = 1.00

Example 3: Teaching full-time during one summer term

Assignment FTE = 1.00

NOTE:

Sum of Assignment FTE's can equal 1.00 or more, Each Assignment should be given a proportionate FTE, however, so that salary and appointment FTE can be accurately prorated to the assignment level.

Since an instructor can teach a number of different courses under his one instructional assignment, it is necessary to obtain an indicator on each course card which reflects the institutionally determined proportion of the full time load that each course represents. The measure which is used for this purpose is the Instructor Fractional F.T.E. The definition and examples of an Instructor Fractional FTE appear below:

INSTRUCTOR FRACTIONAL FTE: Is the fraction of the full-time equivalency (FTE) of the instructor for the term for teaching the course in question based on institutional policies.

Example 1: Teaching a 3 credit hour course for one term when the college policy states that 15 credit hours per term constitutes a full-time load equals 3/15 or .20 Instructor Fractional FTE.

Example 2: Teaching a 2 credit hour course in developmental reading with a great deal of individualized attention and over 10 contact hours per week which constitutes 1/2 of staff members load for the term would equal 1/2 or .50 Instructor Fractional FTE.

Method of Proration to Assignment and Course Level

The measures of FTE obtained with the appointment data, assignment data, and the course data enable an accurate proration of appointment salary to each assignment and likewise to each course that the instructor teaches. The chart below shows an example of a staff member with a $10,000 appointment which has a .75 FTE instructional assignment and a .25 FTE librarian assignment over a 9 month academic year. The example shows the correct proration to each assignment and to each course. Note that the 1/2 Fractional FTE assigned to the Remedial Reading Laborstory was based on local institutional policy and not on credit hours.

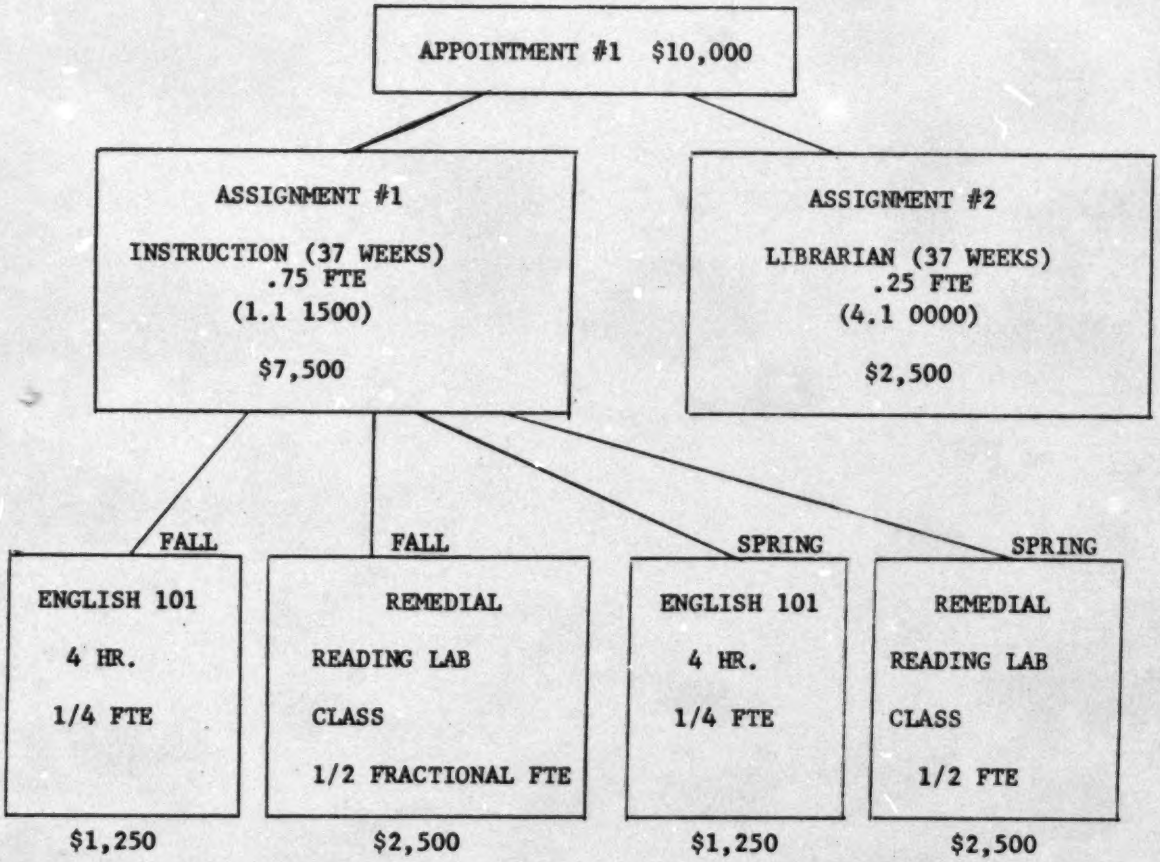


CHART 1

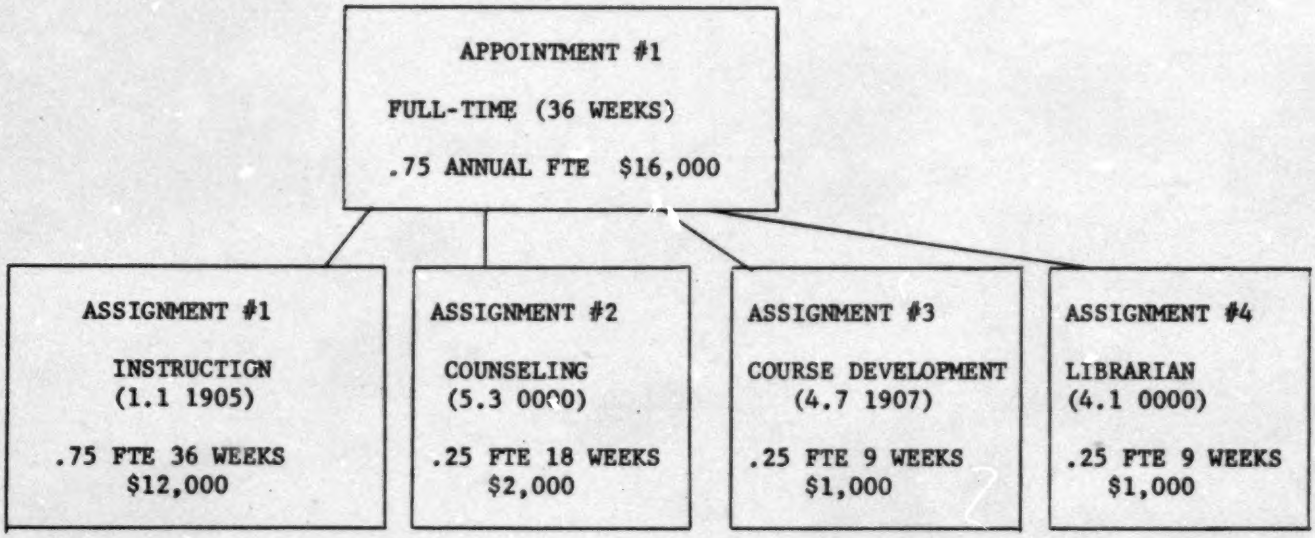
EXAMPLE OF SALARY PRORATION

The proration example shown is a very simple case with both assignments being for the same period and all courses falling under one assignment. In reality, the situation is often more complex; hence, the general method which must be utilized to prorate salary to the assignment and course level is as follows:

$$\text{Salary Cost of Assignment} = \frac{\text{Assignment FTE X Assignment Period in Weeks}}{\text{Appointment Period in Weeks}} \text{ X Appointment Salary}$$

$$\text{Salary Cost of Course} = \frac{\text{Fractional FTE of Course}}{\text{Total of all Fractional FTEs}} \text{ X Salary Cost of Assignment}$$

The chart which follows shows an appointment with several assignments of various length and illustrates the calculation of the proration of salary by use of the two equations above:



Salary Cost of Assignment #1 = $\frac{(.75) \times 36 \text{ WKS.}}{36 \text{ WEEKS}} \times \$16,000 = \$12,000$

Salary Cost of Assignment #2 = $\frac{(.25) \times 18 \text{ WKS.}}{36 \text{ WEEKS}} \times \$16,000 = \$2,000$

Salary Cost of Assignment #3 = $\frac{(.25) \times 9 \text{ WKS.}}{36 \text{ WEEKS}} \times \$16,000 = \$1,000$

Salary Cost of Assignment #4 = $\frac{(.25) \times 9 \text{ WKS.}}{36 \text{ WEEKS}} \times \$16,000 = \$1,000$

CHART 2

METHOD OF DISTRIBUTION OF APPOINTMENT SALARY TO ASSIGNMENT AREAS

A similar proration is calculated from assignments which are designated as instructional to the courses that are taught by the given instructor. A course is linked to an instructor but is not linked to a specific appointment or assignment of that instructor. Hence, if a person has more than one instructional appointment (this would be the case when a teacher has an overload for which he is compensated with extra pay) or assignments, all of these are grouped together before the proration to the courses is calculated. Chart 3 on page 8 shows a sample program which prorates faculty FTE and salary to each course taught by each instructor

ILLINOIS COMMUNITY COLLEGE BOARD
FACULTY COURSE COST REPORT

SOCIAL SECURITY NUMBER	PCS CODE	HEGIS CODE	COURSE IDENTIFIER		SECT	APP PER	DAYS	TIME	CREDIT HOURS	ENROLL -MENT	COURSE FTE	APPT FTE	SALARY COST	SALARY COST PER STUDENT CREDIT HOUR
	0.0		TCH	108	02	6	T H	14:00-16:00	4.00	26	.25	.38	$6,902.50	$66.37
		TOTALS							8.00	42	.50	.76	$13,805.00	$82.17
267-XX-X5XX	0.0		MAT	100	03	4	MTWHF	10:00-11:00	5.00	17	.31	.08	$1,156.54	$13.61
	0.0		MAT	100	04	4	MTWHF	14:00-15:00	5.00	25	.31	.08	$1,156.54	$9.25
	0.0		MAT	124	01	3	MTWHF	09:00-10:00	5.00	28	.31	.08	$1,156.54	$8.26
	0.0		MAT	124	02	3	MTWHF	10:00-11:00	5.00	27	.31	.08	$1,156.54	$8.57
	0.0		MAT	124	03	3	MTWHF	14:00-15:00	5.00	23	.31	.08	$1,156.54	$10.06
	0.0		MAT	124	80	3	M W	18:05-20:10	3.00	21	.31	.08	$1,156.54	$18.36
	0.0		MAT	125	01	4	M W F	13:00-14:00	3.00	16	.19	.05	$708.85	$14.77
	0.0		MAT	125	01	6	M W F	11:00-12:00	3.00	23	.19	.05	$708.85	$10.27
	0.0		MAT	125	02	6	M W F	14:00-15:00	3.00	13	.19	.05	$708.85	$18.18
	0.0		MAT	127	01	4	MTWHF	09:00-10:00	5.00	13	.31	.08	$1,156.54	$17.79
	0.0		MAT	127	80	4	T H	18:05-20:10	4.00	26	.31	.08	$1,156.54	$11.12
	0.0		MAT	128	01	6	MTW F	13:00-14:00	4.00	12	.25	.06	$932.70	$19.43
	0.0		MAT	128	80	6	T H	18:30-20:10	4.00	12	.25	.06	$932.70	$19.43
	0.0		MAT	135	01	6	M WHF	12:00-13:00	4.00	16	.25	.06	$932.70	$14.57
		TOTALS							58.00	272	3.80	.97	$14,176.97	$12.35
275-XX-X1XX	0.0		BHS	102	02	4	M W F	13:00-14:00	4.00	15	.33	.06	$1,002.00	$16.70
	0.0		BHS	102	03	4	M WH	15:00-16:00	4.00	24	.33	.06	$1,002.00	$10.44
	0.0		BHS	111	80	3	M W	18:00-20:00	4.00	22	.33	.06	$1,002.00	$11.39
	0.0		BHS	112	80	4	M W	18:00-20:00	4.00	22	.33	.06	$1,002.00	$11.39
	0.0		BHS	113	80	6	M W	18:00-20:00	4.00	18	.33	.06	$1,002.00	$13.92
	0.0		BIO	101	01	3	M W F	08:00-09:00	4.00	22	.33	.06	$1,002.00	$11.39
	0.0		BIO	101	02	3	M W F	09:00-10:00	4.00	21	.33	.06	$1,002.00	$11.93
	0.0		BIO	101	02	4	M WH	11:00-12:00	4.00	22	.33	.06	$1,002.00	$11.39
	0.0		BIO	101	03	6	M W F	13:00-14:00	4.00	17	.33	.06	$1,002.00	$14.74
	0.0		BIO	101	04	4	T HF	14:00-15:00	4.00	12	.33	.06	$1,002.00	$20.88
	0.0		BIO	101	05	3	M W F	12:00-13:00	4.00	21	.33	.06	$1,002.00	$11.93
	0.0		BIO	101	10	3	T HF	10:00-11:00	4.00	18	.33	.06	$1,002.00	$13.92
	0.0		BIO	102	01	6	M W F	08:00-09:00	4.00	24	.33	.06	$1,002.00	$10.44
	0.0		BIO	102	02	6	M WH	09:00-10:00	4.00	24	.33	.06	$1,002.00	$10.44
	0.0		BIO	102	03	6	M W F	11:00-12:00	4.00	20	.33	.06	$1,002.00	$12.53
		TOTALS							60.00	302	4.95	.90	$15,030.00	$12.44

CLASSES TAUGHT DURING 09/01/74 TO 09/01/75

at a college. This report is very useful for validating the faculty and staff data at each college and provides the basic information which can be summarized for Unit Cost Study purposes. The programs to provide a summary of this data by HEGIS category for each college and for the state are being developed by the ICCB staff. The format of these programs is shown below:

DIRECT SALARY COSTS BY PCS AND HEGIS
(Proposed Summary Report)

College _____

PCS	HEGIS	# OF SECTIONS	# COURSE CREDIT HOURS	FACULTY APPT. FTE	STUDENT ENROLLMENT	STUDENT CREDIT HOURS	SALARY COST	SALARY COST PER STUDENT CREDIT HOUR
1.1	0401	50	150	4	1200	3600	$108,000	$30.00
1.1	0402	20	95	3	600	1800	$ 72,000	$40.00
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
1.1	0400	1202	418	27	5292	15,875	$555,625	$35.00
1.1	0501	10	30	1	200	600	$34,200	$57.00
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.

(Sample data only)

Basic Utilization Reports

Although the data in the faculty and staff file when merged with the course enrollment file is capable of producing a great variety of useful reports, the ICCB staff was interested in developing a basic set of reports which would accurately reflect faculty productivity and which would be useful for college management. The ICCB staff utilized input in the development of these basic reports from the ICCB Research Advisory Council, the Illinois Community College Faculty Association, and the ICCB Management Information System Policy Advisory Committee. The basic utilization reports were based on the following assumptions and criteria:

1. That there is no one best measure of faculty and staff utilization but instead that a profile of measures is essential. Hence, rather than using average class size as the only measure of faculty productivity, the reports utilize course contact hours, student contact hours, course credit hours and student credit hours in addition to student enrollments per course for this purpose.

2. That all the above measures of faculty productivity are dependent upon the type of instruction which is taking place. Hence, the various reports utilize these measures of productivity by instructional type.

3. That the utilization of faculty and staff, as a resource, should accurately represent the local differences in organization, operation, procedures, and policy and at the same time provide comparability for statewide analysis.

4. The data utilized for the ICCB MIS faculty and staff utilization reports should be derived from data which is reported for other ICCB MIS modules. The faculty and staff utilization reports are generated from course enrollment data submitted for apportionment claims and faculty and staff inventory data.

The basic utilization reports developed have many options and can respond to a variety of different requests, the two charts which follow show a summary of the basic data which the various reports produce. As mentioned in the section above, the reports attempt to show a profile of the faculty and staff outputs for each college. Chart 4 on the next page shows the faculty outputs by college (basic data), faculty outputs by college per (FTE), salary cost per faculty output, and faculty salary per annual FTE. The numbers and dollars used in Chart 4 are sample data only, but they do illustrate the types of data which can be obtained from the utilization reports.

Chart 5 on page 13 shows a sample class size report by instructional type. This report shows course enrollment per class, contact hours per class, student credit hours per class, and student contact hours per class. In addition, these measures are shown for each of the instructional types which include lecture, laboratories and independent study as well as several others. This report is very useful in showing, not only a report of the average faculty loads within a college, but also of the variety of the instructional delivery which is utilized at the college. It also helps to explain why there is a justifiable difference in the various output measures from college to college depending upon the instructional delivery system which is utilized.

The basic utilization reports which were developed for the ICCB faculty and staff module are as follows:

1. FASM-55 Faculty and Staff Salary Report
2. FASM-60 Class Size by Instructional Type
3. FASM-62 Number and Percent of Classes by Instructional Type and Class Size
4. FASM-64 State Summary: Number and Percent of Classes by Class Size

CLASS SIZE BY INSTRUCTIONAL TYPE

STATE TOTALS

INSTRUCTIONAL TYPE	COURSE ENROLLMENT PER CLASS	CONTACT HOURS PER CLASS	STUDENT CREDIT HOURS PER CLASS	STUDENT CONTACT HOURS PER CLASS
L - LECTURE	19.4	2.70	57.94	52.55
D - DISCUSSION/LECT	23.7	2.73	74.27	63.44
S - SEMINAR	12.5	1.64	20.41	19.38
X - LAB/LAB-DISCUSS	15.1	3.72	47.43	54.82
I - INDEPENDENT ST	7.4	.30	22.10	3.35
E - INTERNSHIP	8.0	1.03	31.89	17.73
A - AUDIO-VISUAL	2.8	.24	7.24	1.54
T - TELEVISION/OPEN	52.2	1.50	156.67	78.33
O - OTHER	18.4	3.15	60.88	65.61
TOTALS	20.3	2.91	63.52	58.19

CHART 5

SAMPLE CLASS SIZE REPORT BY INSTRUCTIONAL TYPE

FACULTY OUTPUTS BY COLLEGE (BASIC DATA)

NO. OF FACULTY	FACULTY FTE	STUDENT COURSE ENROLLMENT	COURSE CONTACT HRS.	STUDENT CONTACT HRS.	COURSE CREDIT HRS.	STUDENT CREDIT HRS.	TOTAL SALARY COST
2959	2166	227,202	35,883	669,958	36,691	704,051	$47,026,038

FACULTY OUTPUTS BY COLLEGE (PER FTE)

# OF FACULTY	FACULTY FTE	STUDENT COURSE ENROLLMENT PER FTE	COURSE CONTACT HRS. PER FTE	STUDENT CONTACT HRS. PER FTE	STUDENT CREDIT HOUR PER FTE	SALARY COST PER ANNUAL (12 MO.) FTE FACULTY
2959	2166	105	16.6	309.3	16.9	$21,711

SALARY COST PER FACULTY OUTPUT

SALARY COST PER STUDENT COURSE ENROLLMENT	SALARY COST PER COURSE CONTACT HOUR	SALARY COST PER STUDENT CONTACT HOUR	SALARY COST PER COURSE CREDIT HOUR	SALARY COST PER STUDENT CREDIT HOUR
$99.71	$659.30	$34.98	$675.52	$33.87

FACULTY SALARY REPORT

# FULL-TIME FACULTY	# PART-TIME FACULTY	# FACULTY FTE	TOTAL FACULTY SALARY	AVERAGE FULL-TIME SALARY	AVERAGE PART-TIME SALARY	AVERAGE SALARY PER ANNUAL FTE
3012	22	2274	$48,136,113	$15,938	$6224	$21,169

CHART 4

SAMPLE DATA SHOWN ON THE ICCB FACULTY & STAFF UTILIZATION REPORTS

5. FASM-66 State Summary: Mean Class Size by Instructional Type
6. FASM-70 Faculty Outputs by College
7. FASM-75-a Faculty Outputs Per Annual Faculty FTE by College
8. FASM-75-b Direct Salary Cost Per Unit of Faculty Output by College
9. FASM-82 Faculty Course Cost Report

These utilization reports are illustrated and described in detail in a special publication designed for the users of these reports entitled, ICCB MIS Faculty and Staff Utilization User's Handbook. This handbook not only shows the sample reports but describes the many options which are available on each program to meet the specific need of the user.

Conclusion

The ICCB MIS Faculty and Staff Module is designed to produce meaningful and useful information reports for the analysis of faculty and staff, as a resource, in the community colleges of Illinois. The faculty and staff inventory data is designed so that an individual may have several appointments each containing one or more assignments. This design accommodates the complex nature of the staffings at the 39 community colleges of Illinois and enables an accurate proration of salaries to the various assignments as well as to the course level. This feature of the faculty and staff module can provide basic salary allocation for the unit cost study. The same proration is essential to accurately calculate outputs per annual faculty FTE.

Interfacing the faculty data with the course enrollment file produces a number of faculty productivity reports which show a profile of the following outputs measures: student course enrollment, course contact hours, student contact hours, course credit hours, and student credit hours. This profile of outputs shows a much more accurate representation of the actual productivity

of faculty than any one single measure. As an example, the faculty at some colleges may have a low average class size but may teach more classes per term thereby having a high number of course contact hours and an average number of student contact hours and student credit hours. On the other hand, the faculty at some colleges are limited to a low number of course contact hours by contract; however, if they teach large classes, they can still produce an above average number of student contact hours and student credit hours per FTE faculty. Showing a profile of the output measures reveals these differences and enables comparable analysis among institutions with different policies.

Another feature of the faculty and staff utilization reports is that the profile of output measures are analyzed by instructional type. It is very reasonable to expect a much larger class size in lecture class than in laboratory classes or seminars, for example. This type of analysis enables each college to compare itself with other colleges based on each type of instruction used. For example, if a college uses primarily lecture instruction, it would probably have much higher class size than a college using primarily independent study. The only rational comparison in this case would be on the basis on instructional type.

The faculty and staff utilization reports do provide useful and timely information about the faculty and staff, as a resource, in the community colleges of Illinois. This information serves the state agencies and the legislature in making decisions relative to state funding and provides a very powerful management tool for local community college administrators. This module also provides the trustees and the faculty at the colleges with comparable data on faculty salaries and faculty productivity within the public community colleges of Illinois.

UNIVERSITY OF CALIF.
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JAN 21 1977

CLEARINGHOUSE FOR
JUNIOR COLLEGES